

REMARKS

Claims 1-4 are all the claims pending in the application. Applicant adds claim 4 by way of this amendment to further define the invention as discussed in detail below.

Claims 1-3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hartigan et al. (5,704,094) in view of Go (6,091,938).

Analysis

To review briefly, the present invention is directed to the opening and closing structure of a flip phone. In particular, a cam mechanism generates a biasing force in either the opening or closing direction to facilitate the opening and closing of the flip portion of the phone. The cam mechanism includes a first cam portion and a second cam portion, which contact each other. A metal member is provided between the first and second cam portion. The metal member improves durability of the overall opening and closing structure of the phone as compared to contact portions that are formed of resin, etc.

The Examiner submits that Hartigan discloses all the features of claims 1-3 except for the concave/convex arrangement of the second cam. However, Hartigan fails to disclose several other features of claims 1-3 as explained below.

Figures 1 and 2 of Hartigan illustrate the biasing mechanism in detail. Hartigan fails to disclose a first cam mechanism on a rotary shaft. The pin 114 is not structurally related to the cam 220. As discussed at col. 3, line 15, the cavity 104 has a closed end 108. The entire cam assembly 102 fits within the cavity 104. Thus, the pin 114 does not extend through to the cavity 104, and thus, does not extend to the cam 220 of the assembly 102. Although the cavity 104 can be longer or shorter, it is required to house the assembly 102, and thus, there is no physical

interaction between the pin 114 and cam 220 of the assembly 102. Therefore, Hartigan fails to disclose “a first cam portion provided on said rotary shaft”.

In addition, Hartigan fails to disclose that a biasing force is generated between the pin 114 and the alleged bearing member 201. As mentioned above, the pin 114 is not structurally related to the cam assembly 102. Therefore, a relative rotation biasing force is not generated between the pin 114 and the alleged bearing member 201. In view of this structure in Hartigan, this reference does not disclose “wherein a relative rotation biasing force is generated between said rotary shaft and said bearing member...and the relative rotation biasing force generated between said rotary shaft and said bearing member is caused to function as the closing biasing force and the opening biasing force to thereby constitute said biasing mechanism”.

Finally, as mentioned by the Examiner, Hartigan fails to disclose that the alleged second cam portion 205 has a shape to allow it to come into convex/concave engagement with the first cam portion 220.

The Examiner turns to Go to supplement the deficiencies of Hartigan. The so-called shaft 80 in Go is actually a wire 80. The wire is provided to serve as a signal path between the microphone and the audio circuit (col. 3, lines 22-23). Thus, the wire is not actually a shaft as in the present invention. The wire does not function as a shaft as understood by one of ordinary skill in the art. Moreover, even if the wire were considered to be a shaft, it would not have been obvious to modify Hartigan to utilize such a wire. The Hartigan assembly is provided in order to achieve a low-cost simply cam assembly. Integrating electrical circuitry into the cam assembly would defeat this purpose.

Thus, claims 1-3 are patentable over combination of Hartigan and Go.

Furthermore, with regard to claim 2, the Examiner takes Official Notice of the use of synthetic resin for the first and second cams, and asserts that it would have been obvious to use such a material in the hinge mechanism.

However, Applicant submits that there is no teaching or suggestion in any of the prior art to use a combination of synthetic resin and metal as in the present invention. In the present invention, the cams are formed by synthetic resin, and a metal member is provided between the cam portions. This arrangement is not taught or suggested by any of the prior art. The prior art simply teaches the use of one material, and never contemplates the use of both materials for a cam arrangement. Thus, the unique combination of synthetic resin cam portions and a metal member as a contact portion between the cams is neither taught nor suggested. The Examiner is requested to provide documentary evidence showing a cam structure having a synthetic resin material, with a metal contact portion member, in accordance with MPEP § 2144.03.

Finally, Applicant adds claim 4 directed to the particular metal member structure. The particular structure of the metal plate 11 and claw members 14.

None of the prior art references teaches or suggests that the metal member is formed by a metal plate and claw members. There is no teaching or suggestion that one cam member has a metal plate with V-shaped projections fitted over rising projections of the cam member, and the other cam member has a plurality of metal claws, each claw having a sharp end and a curved portion, fitted in recesses of the other cam member. Thus, claim 4 is patentable.

Conclusion


In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/757,575

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Ellen R. Smith
Registration No. 43,042

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: April 26, 2005

Attorney Docket No.: Q59273